

SEQUENCE LISTING

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 FAATZ, ELKE
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<120> DETERMINATION OF A SPECIFIC IMMUNOGLOBULIN USING
 MULTIPLE ANTIGENS

<130> 100564-07003

<140> 08/776,188
 <141> 1997-07-24

<150> PCT/EP95/02919
 <151> 1995-07-24

<150> P 44 26 276.0
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<150> P 44 30 972.4
 <151> 1994-08-31

<160> 77

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 of HIV type 1, HIV type 2 or HIV subtype 0

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 1 5 10 15
 Thr

<210> 2
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 of HIV type 1, HIV type 2 or HIV subtype 0

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 of HIV type 1, HIV type 2 or HIV subtype O

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Trp Tyr Ser

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 of HIV type 1, HIV type 2 or HIV subtype O

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 of HIV type 1, HIV type 2 or HIV subtype O

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Pro Trp Asn Ala Ser Trp Ser
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 of HIV type 1, HIV type 2 or HIV subtype O

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Leu Gln Asn

<210> 10
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<210> 12
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<210> 13
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 Glu Glu Ala Ser Gln His Leu Pro Tyr Ile Glu Gln
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Leu Glu Thr Leu Leu Gln Asn
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Tyr Thr Ser

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Trp Tyr Ser

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<220>
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<220>
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Arg Ala Phe Tyr Thr
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Phe Tyr

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Gly Ile Trp

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 Leu Gly Ile Trp
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 20 25

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 Leu Glu Thr Leu Leu Gln Asn
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 Cys Thr Thr Ala Val
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Trp Asn Ala Ser Trp Ser
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Ala Ser Trp Ser
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<220>
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 1 5 10 15

Ser Trp Ser Lys Xaa Gly
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Tyr Thr Ser

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<220>
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 1 5 10 15

Gly Lys Leu

<210> 38

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<223> Epsilon-aminocaproic acid

<220>

<221> MOD_RES

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 1 5 10 15

Ser Leu Trp

<210> 39

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<223> Epsilon-aminocaproic acid

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<210> 40

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<222> (4)

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 1 5 10 15

Arg Ala Phe Tyr Thr
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<210> 41

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Phe Tyr

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<220>
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Phe Tyr

<210> 43
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Pro Gly Met Ala Trp Tyr Ser
20

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Gly Ile Trp

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<400> 45

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 1 5 10 15

Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Ala Ser Gly
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Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Ala Ser Gly
 20 25

<210> 47

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<400> 47
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Leu Glu Thr Leu Leu Gln Asn
 20

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Thr Thr Ala Val
 20

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<220>
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 <222> (2)
 <223> Beta-alanine

<400> 49
 Xaa Xaa Gly Gly Gly Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala
 1 5 10 15

Val Pro Trp Asn Ala Ser Trp Ser
 20

<210> 50
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (21)
 <223> BPRu

<400> 50
 Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala
 1 5 10 15

Ser Trp Ser Lys Xaa
 20

<210> 51
 <211> 19

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (3)
 <223> Epsilon-aminocaproic acid

<220>
 <221> MOD_RES
 <222> (4)
 <223> Beta-alanine

<400> 51
 Xaa Xaa Xaa Xaa Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Ser Ser
 1 5 10 15

Gly Lys Leu

<210> 52
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (3)
 <223> Epsilon-aminocaproic acid

<220>
 <221> MOD_RES

<222> (4)
 <223> Beta-alanine

<400> 52
 Xaa Xaa Xaa Xaa Ala Leu Glu Thr Leu Leu Gln Asn Gln Gln Leu Leu
 1 5 10 15

Ser Leu Trp

<210> 53
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (3)
 <223> Epsilon-aminocaproic acid

<220>
 <221> MOD_RES
 <222> (4)
 <223> Beta-alanine

<400> 53
 Xaa Xaa Xaa Xaa Asn Ser Trp Gly Cys Ala Phe Arg Gln Val Cys His
 1 5 10 15

Thr Thr

<210> 54
 <211> 31
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<400> 54

Xaa Gly Gly Gly Gln Ala Gln Leu Asn Ser Trp Gly Cys Ala Phe Arg
 1 5 10 15

Gln Val Cys His Thr Thr Val Pro Trp Pro Asn Asp Ser Leu Thr
 20 25 30

<210> 55

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<221> MOD_RES

<222> (2)

<223> Beta-alanine

<220>

<221> MOD_RES

<222> (3)

<223> Epsilon-aminocaproic acid

<400> 55

Cys Xaa Xaa Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro
 1 5 10 15

Glu Ser Asp Ala Ala
 20

<210> 56

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<221> MOD_RES

<222> (1)

<223> Digoxigenin-3-cme

<220>

<221> MOD_RES

<222> (2)

<223> Beta-alanine

<220>

<221> MOD_RES

<222> (3)

<223> Epsilon-aminocaproic acid

<220>
 <221> MOD_RES
 <222> (4)
 <223> Beta-alanine

<400> 56
 Xaa Xaa Xaa Xaa Ser Arg Arg Phe Ala Gln Ala Leu Pro Val Trp Ala
 1 5 10 15

Arg Pro Asp

<210> 57
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> Digoxigenin-3-cme

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<400> 57
 Xaa Xaa Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
 1 5 10 15

Gly Val

<210> 58
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> Digoxigenin-3-cme

<220>
 <221> MOD_RES
 <222> (2)..(3)
 <223> Beta-alanine

<220>
 <221> MOD_RES

<222> (4)

<223> Epsilon-norleucine-OH

<400> 58

Xaa	Xaa	Xaa	Xaa	Glu	Glu	Ala	Ser	Gln	His	Leu	Pro	Tyr	Ile	Glu	Gln
1				5				10						15	

<210> 59

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<221> MOD_RES

<222> (1)

<223> Digoxigenin-3-cme

<220>

<221> MOD_RES

<222> (2)..(3)

<223> Beta-alanine

<400> 59

Xaa	Xaa	Xaa	Gln	Lys	Ala	Leu	Gly	Leu	Leu	Gln	Thr
1				5				10			

<210> 60

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<221> MOD_RES

<222> (1)

<223> Digoxigenin-3-cme

<220>

<221> MOD_RES

<222> (2)

<223> Beta-alanine

<220>

<221> MOD_RES

<222> (3)

<223> Epsilon-aminocaproic acid

<220>

<221> MOD_RES

<222> (4)

<223> Beta-alanine

<400> 60
 Xaa Xaa Xaa Xaa Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val
 1 5 10 15

Pro Glu Ser Asp Ala Ala
 20

<210> 61
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> Digoxigenin-3-cme

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (3)
 <223> Epsilon-aminocaproic acid

<220>
 <221> MOD_RES
 <222> (4)
 <223> Beta-alanine

<400> 61
 Xaa Xaa Xaa Xaa Lys Asn Lys Arg Asn Thr Asn Arg Arg
 1 5 10

<210> 62
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> Digoxigenin-3-cme

<220>
 <221> MOD_RES

<222> (2)

<223> Beta-alanine

<400> 62

Xaa Xaa Pro Gln Arg Lys Asn Arg Asn Thr Asn Arg Arg Pro Gln Asp
 1 5 10 15

Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val
 20 25

<210> 63

<211> 28

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<221> MOD_RES

<222> (1)

<223> Digoxigenin-3-cme

<220>

<221> MOD_RES

<222> (2)

<223> Beta-alanine

<220>

<221> MOD_RES

<222> (3)

<223> Epsilon-aminocaproic acid

<400> 63

Xaa Xaa Xaa Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr Val Arg
 1 5 10 15

Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro Val
 20 25

<210> 64

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<221> MOD_RES

<222> (1)

<223> BPRu

<400> 64

Xaa Gly Gly Gly Lys Asn Lys Arg Asn Thr Asn Arg Arg
 1 5 10

<210> 65
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (3)
 <223> Epsilon-aminocaproic acid

<220>
 <221> MOD_RES
 <222> (4)
 <223> Beta-alanine

<400> 65
 Xaa Xaa Xaa Xaa Lys Asn Lys Arg Asn Thr Asn Arg Arg Pro Gln Asp
 1 5 10 15
 Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val
 20 25

<210> 66
 <211> 31
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES

<222> (3)
 <223> Epsilon-aminocaproic acid

<220>
 <221> MOD_RES
 <222> (4)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (15)..(16)
 <223> Epsilon-norleucine-OH

<400> 66
 Xaa Xaa Xaa Xaa Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Xaa Xaa
 1 5 10 15
 Leu Ala Glu Gln Phe Lys Gln Gln Ala Leu Gly Leu Leu Gln Thr
 20 25 30

<210> 67
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (3)
 <223> Epsilon-aminocaproic acid

<400> 67
 Xaa Xaa Xaa Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro
 1 5 10 15
 Glu Ser Asp Ala Ala
 20

<210> 68
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (3)
 <223> Epsilon-aminocaproic acid

<400> 68
 Xaa Xaa Xaa Ser Arg Arg Phe Ala Gln Ala Leu Pro Val Trp Ala Arg
 1 5 10 15

Pro Asp

<210> 69
 <211> 33
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (3)
 <223> Epsilon-aminocaproic acid

<400> 69
 Xaa Xaa Xaa Lys Asn Lys Arg Asn Thr Asn Arg Arg Pro Gln Asp Val
 1 5 10 15

Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val Leu Leu Pro Arg
 20 25 30

Arg

<210> 70
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (3)
 <223> Epsilon-aminocaproic acid

<400> 70
 Xaa Xaa Xaa Asn Pro Lys Pro Gln Lys Lys Asn Lys Arg Asn Thr Asn
 1 5 10 15

Arg Arg

<210> 71
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (3)
 <223> Epsilon-aminocaproic acid

<400> 71
 Xaa Xaa Xaa Gly Gln Ile Val Gly Gly Val Tyr Leu Leu Pro Arg Arg
 1 5 10 15

Gly Pro Arg Leu Gly
20

<210> 72
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<220>
<221> MOD_RES
<222> (1)
<223> BPRu

<220>
<221> MOD_RES
<222> (2)
<223> Beta-alanine

<220>
<221> MOD_RES
<222> (3)
<223> Epsilon-aminocaproic acid

<400> 72
Xaa Xaa Xaa Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val
1 5 10 15

Gly Gly Val

<210> 73
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<220>
<221> MOD_RES
<222> (1)
<223> BPRu

<220>
<221> MOD_RES
<222> (2)
<223> Beta-alanine

<220>
<221> MOD_RES
<222> (3)
<223> Epsilon-aminocaproic acid

<220>
 <221> MOD_RES
 <222> (4)
 <223> Beta-alanine

<400> 73
 Xaa Xaa Xaa Xaa Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val
 1 5 10 15
 Pro Glu Ser Asp Ala Ala
 20

<210> 74
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)
 <223> BPRu

<220>
 <221> MOD_RES
 <222> (2)
 <223> Beta-alanine

<220>
 <221> MOD_RES
 <222> (3)
 <223> Epsilon-aminocaproic acid

<220>
 <221> MOD_RES
 <222> (4)
 <223> Beta-alanine

<400> 74
 Xaa Xaa Xaa Xaa Ser Gln His Leu Pro Tyr Ile Glu Gln
 1 5 10

<210> 75
 <211> 28
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Epitope region
 of HIV type 1, HIV type 2 or HIV subtype O

<400> 75
 Pro Gln Lys Lys Asn Lys Arg Asn Thr Asn Arg Arg Pro Gln Asp Val
 1 5 10 15

Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val
20 25

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<210> 76
<211> 18
<212> PRT
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

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<220>  
<221> MOD_RES  
<222> (1)  
<223> BPRu
```

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<220>  
<221> MOD_RES  
<222> (2)  
<223> Beta-alanine
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<220>
<221> MOD_RES
<222> (3)
<223> Epsilon-aminocaproic acid
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<400> 76
Xaa Xaa Xaa Asn Pro Lys Pro Gln Arg Lys Asn Lys Arg Asn Thr Asn
  1             5             10             15
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Arg Arg

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<210> 77
<211> 328
<212> PRT
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic
      peptide
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<400> 77
Met Thr Met Ile Thr Pro Ser Leu Ala Ala Gly Pro Asp Lys Gly Asn
  1             5             10             15
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Ser Ser Gln Val Ser Gln Asn Tyr Pro Ile Val Gln Asn Leu Gln Gly
20 25 30

Gln Met Val His Gln Ala Ile Ser Pro Arg Thr Leu Asn Ala Trp Val
35 40 45

Lys Val Ile Glu Glu Lys Ala Phe Ser Pro Glu Val Ile Pro Met Phe
50 55 60

Ser Ala Leu Ser Glu Gly Ala Thr Pro Gln Asp Leu Asn Thr Met Leu
 65 70 75 80
 Asn Thr Val Gly Gly His Gln Ala Ala Met Gln Met Leu Lys Glu Thr
 85 90 95
 Ile Asn Glu Glu Ala Ala Glu Trp Asp Arg Val His Pro His His Ala
 100 105 110
 Gly Pro Ile Ala Pro Gly Gln Met Arg Glu Pro Arg Gly Ser Asp Ile
 115 120 125
 Ala Gly Thr Thr Ser Thr Leu Gln Glu Gln Ile Gly Trp Met Thr Asn
 130 135 140
 Asn Pro Pro Ile Pro Val Gly Glu Ile Tyr Lys Arg Trp Ile Ile Leu
 145 150 155 160
 Gly Leu Asn Lys Ile Val Arg Met Tyr Ser Pro Val Ser Ile Leu Asp
 165 170 175
 Ile Arg Gln Gly Pro Lys Glu Pro Phe Arg Asp Tyr Val Asp Arg Phe
 180 185 190
 Tyr Lys Thr Leu Arg Ala Glu Gln Ala Ser Gln Glu Val Lys Asn Trp
 195 200 205
 Met Thr Glu Thr Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Thr
 210 215 220
 Ile Leu Lys Ala Leu Gly Pro Ala Ala Thr Leu Glu Glu Met Met Thr
 225 230 235 240
 Ala Cys Gln Gly Val Gly Gly Pro Gly His Lys Ala Arg Val Leu Ala
 245 250 255
 Glu Ala Met Ser Gln Val Thr Asn Ser Ala Thr Ile Met Met Gln Arg
 260 265 270
 Gly Asn Phe Arg Asn Gln Lys Lys Thr Val Lys Cys Phe Asn Cys Gly
 275 280 285
 Lys Glu Gly His Ile Ala Lys Asn Cys Arg Ala Pro Arg Lys Lys Gly
 290 295 300
 Cys Trp Lys Cys Gly Lys Glu Gly His Gln Met Lys Asp Cys Thr Glu
 305 310 315 320
 Arg Gln Ala Asn Phe Leu Gly Asn
 325